Lucent Technologies

DEFINITY® Extender
Switch Module

System Administrator's Guide

Notice

Every effort was made to ensure that the information in this book was complete and accurate at the time of printing. However, information is subject to change.

Your Responsibility for Your System's Security

Toll fraud is the unauthorized use of your telecommunications system by an unauthorized party, for example, persons other than your company's employees, agents, subcontractors, or persons working on your company's behalf. Note that there may be a risk of toll fraud associated with your telecommunications system and, if toll fraud occurs, it can result in substantial additional charges for your telecommunications services.

You and your system manager are responsible for the security of your system, such as programming and configuring your equipment to prevent unauthorized use. The system manager is also responsible for reading all installation, instruction, and system administration documents provided with this product in order to fully understand the features that can introduce risk of toll fraud and the steps that can be taken to reduce that risk. Lucent Technologies does not warrant that this product is immune from or will prevent unauthorized use of common-carrier telecommunication services or facilities accessed through or connected to it. Lucent Technologies will not be responsible for any charges that result from such unauthorized use.

Lucent Technologies Fraud Intervention

If you *suspect that you are being victimized* by toll fraud and you need technical support or assistance, call the National Customer Care Center at 1 800 643-2353.

Federal Communications Commission Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. For further FCC information, see "Customer Support Information" below.

Industry Canada (IC) Interference Information

This digital apparatus does not exceed the Class B limits for radio noise emissions set out in the radio interference regulations of the Canadian Department of Communications.
Le Présent Appareil Numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la class B préscrites dans le reglement sur le brouillage radioélectrique édicté par le ministère le ministère des Industrie Canada.

Support Telephone Number
In the continental US, Lucent Technologies provides a toll-free customer helpline 24 hours a day. Call the Lucent Technologies Helpline at 1 800 242-2121 or your Lucent Technologies authorized dealer if you need assistance when installing programming, or using your system. Outside the continental US, contact your local Lucent Technologies representative.

Warranty
Lucent Technologies provides a limited warranty on this product. Refer to "Limited Warranty" in "Customer Support Information."

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The exclamation point in an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

IMPORTANT SAFETY INSTRUCTIONS

When installing telephone equipment, always follow basic safety precautions to reduce the risk of fire, electrical shock, and injury to persons, including:

- Read and understand all instructions.

- Follow all warnings and instructions marked on or packed with the product.

- Never install this unit or telephone wiring for it during a lightning storm.

- Never install a telephone jack in a wet location unless the jack is specifically designed for wet locations.

- Never touch uninsulated telephone wires or terminals unless the telephone wiring has been disconnected at the network interface.

- Use caution when installing or modifying telephone lines.

- Use only Lucent Technologies-manufactured DEFINITY Enterprise Communications Server (ECS) circuit packs, carrier assemblies, and power units in the DEFINITY ECS control unit.

- Use only Lucent Technologies-recommended/approved DEFINITY ECS accessories.

- Do not install this product near water, for example, in a wet basement location.

- Do not overload wall outlets, as this can result in the risk of fire or electrical shock.

- Do not attach the power supply cord to building surfaces. Do not allow anything to rest on the power cord. Do not locate this product where the cord will be abused by persons walking on it.

- Unplug the product from the wall outlet before cleaning. Use a damp cloth for cleaning. Do not use cleaners or aerosol cleaners.

- Do not operate the system if chemical gas leakage is suspected in the area. Use telephones located in some other safe area to report the trouble.

⚠ WARNING:

DO NOT open the Switch Module. There are no user serviceable parts inside the unit. Only an authorized technician should open the unit for required maintenance or upgrading purposes.

SAVE THESE INSTRUCTIONS

Customer Support Information

Support Telephone Number

In the USA only, Lucent Technologies provides a toll-tree customer Helpline (1 800 242-2121) 24 hours a day. If you need assistance when installing, programming, or using your system, call the Helpline, or your Lucent Technologies authorized representative.

Outside the USA, if you need assistance when installing, programming, or using your system, contact your Lucent Technologies authorized representative.

Security of Your System: Preventing Toll Fraud

As a customer of a new telephone system, you should be aware that there is an increasing problem of telephone toll fraud. Telephone toll fraud can occur in many forms, despite the numerous efforts of telephone companies and telephone equipment manufacturers to control it. Some individuals use electronic devices to prevent or falsify records of these calls. Others charge calls to someone else's number by illegally using lost or stolen calling cards, billing innocent parties, clipping on to someone else's line, or breaking into someone else's telephone equipment physically or electronically. In certain instances, unauthorized individuals make connections to the telephone network through the use of remote access features.

Common carriers are required by law to collect their tariffed charges. While these charges are fraudulent charges made by persons with criminal intent, applicable tariffs state that the customer of record is responsible for payment of all long-distance or other network charges. Lucent Technologies cannot be responsible for such charges and will not make any allowance or give any credit for charges that result from unauthorized access.

To minimize the risk of unauthorized access to your DEFINITY ECS:

- When possible, restrict the off-network capability of off-premises callers, using calling restrictions, Facility Restriction Levels, and Disallowed List capabilities.

- When possible, block out-of-hours calling through Time-of-Day Routing.

- Frequently monitor system call detail reports for quicker detection of any unauthorized or abnormal calling patterns.

- Limit Outcalling to persons on a need-to-have basis.

The DEFINITY ECS, through proper administration, can help you reduce the risk of unauthorized persons gaining access to the network. However, phone numbers and authorization codes can be compromised when overheard in a public location, lost through theft of a wallet or purse containing access information, or when treated carelessly (writing codes on a piece of paper and improperly discarding them).

Additionally, hackers may use a computer to dial an access code and then publish the information to other hackers. Substantial charges can accumulate quickly. It is your responsibility to take appropriate steps to implement the features properly, to evaluate and administer the various restriction levels, and to protect and carefully distribute access codes.

Under applicable tariffs, you will be responsible for payment of toll charges. Lucent Technologies cannot be responsible for such charges and will not make any allowance or give any credit resulting from unauthorized access.

Lucent Technologies Fraud Intervention

If you *suspect you are being victimized* by toll fraud and you need technical support or assistance, call the National Customer Care Center at **1 800 242-2121**.

Lucent Technologies Limited Warranty

Lucent Technologies Inc. warrants this equipment to be free of defects in materials and workmanship for a period of one year from date of shipment. All defects within this time will be repaired without charge upon notification of Lucent Technologies or its authorized reseller.

This warranty is null and void if the manufacturer determines that any modifications have been made to the unit or the unit has been subjected to physical or electrical stress.

This warranty covers parts and labor only and does not include shipping costs, travel expenses, or travel time.

Installation of the equipment is the sole responsibility of the purchaser. The manufacturer, its agents, or its distributors accept no responsibility for malfunction or damage caused by improper treatment or connection of the unit.

The manufacturer, its agents, or its distributors are not liable for any losses incurred through use or malfunction of the equipment or any losses or damages incurred by the use of the equipment in any means whatsoever.

This warranty is limited to the repair of the equipment to its normal functioning capability.

This warranty is complete as stated and all other warranties, expressed or implied, are invalid.

The DEFINITY Extender System should be installed only by qualified personnel. No user-serviceable parts are contained within the units. Installation or programming should not begin prior to review of all sections of this manual.

FCC Notification
and Repair Information

This equipment is registered with the FCC in accordance with Part 68 of its rules. In compliance with those rules, you are advised of the following:

- **Means of Connection.** Connection of this equipment to the telephone network shall be through a standard network interface jack, USOC RJ11C. These USOCs must be ordered from your telephone company.

- **Party Lines and Coin Telephones.** This equipment can not be used with party lines or coin telephone lines.

- **Notification to the Telephone Companies.** Before connecting this equipment, you or your equipment supplier must notify your local telephone company's business office of the following:

  — The telephone number(s) you will be using with this equipment.

  — The appropriate registration number and ringer equivalence number (REN), which can be found on the back or bottom of the control unit.

  — For each jack, the sequence in which lines are to be connected, the line types, the Facility Interface Code (FIC), and the Ringer Equivalence Number (REN) by position when applicable.

- **Ringer Equivalence Number (REN).** The REN is used to determine the number of devices that can be connected to the telephone line. Excessive RENs on the line can result in the devices not ringing in response to an incoming call. In most, but not all, areas the sum of the RENs should not exceed five (5.0). To be certain of the number of devices that can be connected to the line, as determined by the total RENs, contact the local telephone company to determine the maximum REN for the calling area.

- **Disconnection.** You must also notify your local telephone company if and when this equipment is permanently disconnected from the line(s).

Installation and Operational Procedures

This manual contains information about installation and operational procedures.

- **Repair Instructions.** If you experience trouble because your equipment is malfunctioning, the FCC requires that the equipment not be used and that it be disconnected from the network until the problem has been corrected. Repairs to this equipment can be made only by the manufacturers, their authorized agents, or others who may be authorized by the FCC. In the event repairs are needed on this equipment, contact your authorized Lucent Technologies dealer or, **in the USA only**, contact the National Customer Care Center at 1 800 242-2121.

- **Rights of the Local Telephone Company.** If this equipment causes harm to the telephone network, the local telephone company may discontinue your service temporarily. If possible, they will notify you in advance. But if advance notice is not practical, you will be notified as soon as possible. You will also be informed of your right to file a complaint with the FCC.

- **Changes at Local Telephone Company.** Your local telephone company may make changes in its facilities, equipment, operations, or procedures that affect the proper functioning of this equipment. If they do, you will be notified in advance to give you an opportunity to maintain uninterrupted telephone service.

- **New Network Area and Exchange Codes.** The DEFINITY ECS software does not restrict access to any new area codes or exchange codes established by a local telephone company. If the user has established toll restrictions on the system that could restrict access, then the user should check the lists of allowed and disallowed dial codes and modify them as needed.

- **Equal Access Codes.** This equipment is capable of providing users access to interstate providers of operator services through the use of access codes. Modifications of this equipment by call aggregators to block access dialing codes is a violation of the Telephone Operator Consumers Act of 1990.

Federal Communications Commission (FCC) Electromagnetic Interference Information

The DEFINITY Standalone Switch Module, Multi-Mount Extender Rack, and Rack-Mount Switch Module have been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

About This Book

Intended Audience

This book is intended to help in the installation, system administration, and maintenance of the DEFINITY Extender Switch Module. It is intended for use as a reference by anyone needing such information, including system managers, support personnel, sales representatives, and account executives. It is also intended for technicians who are responsible for system installation, maintenance, and troubleshooting.

Terms and Conventions

The DEFINITY Extender Remote Module is henceforth referred to as the "Remote Module."

The DEFINITY Extender Switch Module is henceforth referred to as the "Switch Module."

When information concerns only the single-unit Switch Module, the term "Standalone Switch Module" is used.

When information concerns only the Rack-Mount Switch Module, the term "Rack-Mount Module" is used.

The DEFINITY Extender Multi-Mount Rack is henceforth referred to as the "Multi-Mount Rack."

Throughout this document, toll fraud security hazards are indicated by an exclamation point inside a triangle and the words Security Alert.

⚠ Security Alert:

> *Security Alert indicates the presence of toll fraud security hazard. Toll fraud is the unauthorized use of your telecommunications system by an unauthorized party (e.g., persons other than your company's employees, agents, subcontractors, or persons working on your company's behalf). Be sure to read "Your Responsibility for Your System's Security" on the inside front cover of this book and "Security of Your System: Preventing Toll Fraud" in About This Book.*

Typographical Conventions

Certain type fonts and styles act as visual cues to help you rapidly understand the information presented:

Example	Purpose
Do *not* recycle old passwords.	Italics indicate emphasis.
If you do not want to disconnect, *go to Step 3.*	Italics also tell you instructions about what to do next in a procedure.
At the "Go Online" screen, press **3** until the following screen appears.	A number in a shaded box is used to designate a key on your telephone.
Press the **Drop** button four times.	The names of fixed-feature, factory-imprinted buttons on a telephone appear in bold.
2:OK 3:Next	Plain constant-width type in a shaded box indicates text that appears on the telephone display.

How to Use This Book

This book is organized into chapters that give information on procedures necessary for the proper installation and administration of your DEFINITY Extender Switch Module.

"Related Documents," later in this section, provides a complete list of system documentation, together with ordering information.

If you have problems with your Switch Module in the continental US, call our toll-free Helpline, available 24 hours a day, at 1 800 242-2121. Outside of the continental US, contact your Lucent Technologies representative or local Authorized Dealer.

Product Safety Labels

Throughout this document, hazardous situations are indicated by an exclamation point inside a triangle and the word *Caution* or *Warning*.

⚠ WARNING:

> *Warning indicates the presence of a hazard that could cause death or severe personal injury if the hazard is not avoided.*

⚠ CAUTION:

> *Caution indicates the presence of a hazard that could cause minor personal injury or property damage if the hazard is not avoided.*

Related Documents

The documents listed below are part of the DEFINITY ECS documentation set. These documents can be ordered from the Lucent Technologies Publications Center.

Call: Lucent Technologies Publications Center

Voice 1 800 457-1235
Fax 1 800 457-1764

International Voice 765 361-5353
International Fax 765 361-5355

Write: Lucent Technologies Publications Center
P.O. Box 4100
Crawfordsville, IN 47933

Document No.	Title
DEFINITY Enterprise Communications Server (ECS) Release 3 System Documents	
555-230-894	*Installation for Single-Carrier Cabinets*
555-230-655	*Implementation Guide, Issue 1*
Toll Fraud Security	
555-025-600	*BCS Products Security Handbook*
DEFINITY Enterprise Communications Server (ECS) Release 3.0 Telephone User Support	
555-230-763	*8410 Voice Terminal User's Guide* (also used for 8410DR)
555-230-765	*8434 Voice Terminal User's Guide*
555-230-792	*Callmaster II and III User's Guide*
555-015-168	*Callmaster II and III Voice Terminal Installation and Use*
555-015-169	*Callmaster II and III Voice Terminal Programming Options*
555-230-796	*DEFINITY® Extender Remote Module User's Guide*

How to Comment on This Document

We welcome your comments, both positive and negative. Please use the feedback form on the next page to let us know how we can continue to serve you. If the feedback form is missing, write directly to:

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Lucent Technologies
211 Mount Airy Road
Room 2W-226
Basking Ridge, NJ 07920-2332

FEEDBACK FORM

DEFINITY® Enterprise Communications Server (ECS), Release 3

Title: **DEFINITY® Extender Switch Module System Administrator's Guide**

Document No.: **555-230-532** Issue: **3** Date: **July 1997**

1. Please rate the effectiveness of this book in the following areas:

	Excellent	Good	Fair	Poor	Not Applicable
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❑ Improve the organization
❑ Improve the index/glossary
❑ Add troubleshooting

❑ Add more step-by-step procedures
❑ Improve the table of contents
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❑ Make it more concise
❑ Include more illustrations
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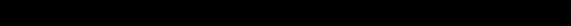
Introduction

<div style="text-align: right; font-size: 4em;">**1**</div>

An overview of the functioning and specifications of the DEFINITY® Extender

The DEFINITY® Extender enables DEFINITY telephone users to be a fully functional part of the PBX telephone system with a digital telephone located any distance off-premise. The Extender is transparent to the user and retains access to the features and functions of the DEFINITY Enterprise Communications Server (ECS). In addition, an RS-232 data port extension is incorporated, allowing the user to connect off-premise RS-232 equipment to equipment at the PBX location.

System Operation and Configuration

The DEFINITY Extender system is designed for use with a DEFINITY ECS of Version 3, Release 3 or later. The Extender system consists of two modules. One module, identified as the Switch Module, connects to your PBX. The other module, identified as the Remote Module, connects to your DEFINITY telephone at your off-premise location. Figure 1-1 shows the Extender system configuration.
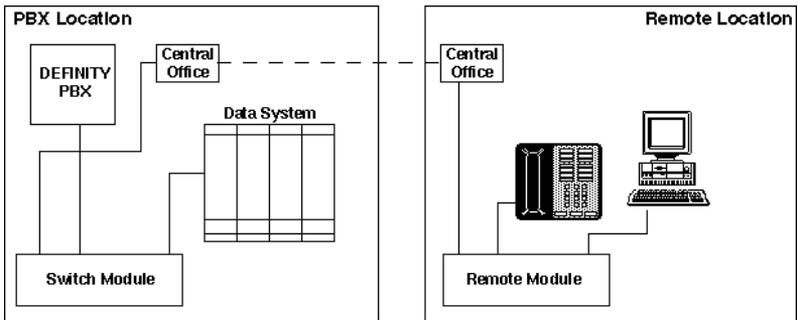
Figure 1-1. System Configuration

The modules communicate via a single two-wire voice-grade circuit that can extend your DEFINITY telephone to virtually unlimited distances. See "Specifications" later in this chapter for detailed circuit specifications.

The Switch Module emulates your telephone and the Remote Module emulates your PBX. Each module features a V.32terbo internal modem for the transmission of all signals between the two modules. With the use of Lucent Technologies' DEFINITY Extender system, the features and capabilities of your on-premise telephones are extended to those off-premise.

⚠ Security Alert:

Using the Remote Module gains access to the features of the DEFINITY ECS, including access to WATS lines, FX lines, etc., which are subject to toll fraud. Guard passwords carefully!

The Switch Module comes in two versions: the single standalone module and the Rack-Mount Module that fits into the Multi-Mount Extender Rack. Each Multi-Mount Rack can hold up to 12 Rack-Mount Modules. Each Rack-Mount Module functions exactly like the Standalone Switch Module.

NOTE:
In this guide, the standalone module is called the "Standalone Switch Module," and the module inserted into the Multi-Mount Rack is called the "DEFINITY Extender Rack-Mount Module" or simply the "Rack-Mount Module." When information is the same for both the Standalone and Rack-Mount Switch Modules, the term "Switch Module" is used.

Equipment List

Both versions of the Switch Module come with most of the necessary equipment. However, some additional items are required.

Standalone Switch Module

Your Standalone Switch Module package should include:

- One Switch Module (identified on the top of the unit)

- One AC adapter

- 25-ft. D2R line cord

- 7-ft. D8W cord to connect to the DEFINITY ECS

- *DEFINITY® Extender Switch Module System Administrator's Guide*

Multi-Mount Extender Rack

Your Multi-Mount Extender Rack package should include:

- One Multi-Mount Rack

- One AC adapter or DC-to-DC converter

- *DEFINITY® Extender Switch Module System Administrator's Guide*

Customer-Supplied Equipment

> **NOTE:**
> DEFINITY telephones are not supplied with either the Switch Module or the Remote Module and must be ordered separately. Contact your Lucent Technologies representative for information. Remote Modules are also ordered and shipped separately. For new DEFINITY Extender systems that use Standalone Switch Modules, you should order at least one Remote Module to be used in the initial programming of passwords.

You must supply the following for installation:

- DEFINITY ECS two-wire, 16-port TN-2181 circuit pack

- Any additional DEFINITY ECS circuit packs needed (see the *DEFINITY® Communications System Generic 3, Installation for Single-Carrier Cabinets* manual, document #555-230-894, comcode #107595423, for further information).

- An adapter to convert to 120 vac if you are connecting the Standalone Switch Module or the Multi-Mount Rack to a 240-vac outlet.

- Power and central office line suppressor. Lucent Technologies recommends the 147C AC/CO Line Surge Protector (#8310-006). Contact your Lucent Technologies representative for ordering instructions.

- A 50-pin Amphenol connector of proper length for the Multi-Mount Rack

- Up to 12 Rack-Mount Switch Modules for each Multi-Mount Rack that has been ordered

- Password Manager Program diskette (PEC 2174-PSA) if you are using Rack-Mount Switch Modules

NOTE:
Save your packing materials. Even though the Switch Module is a reliable product, it may be necessary to return it for maintenance. When returning the module, use the original package.

Compatibility

The DEFINITY Extender is compatible with the following commercial two-wire DEFINITY ECS display telephones:

- 8410D

- 8410DR—Class B telephone registered for residential use

- 8434D

  NOTE:
  The power supply that comes with the DEFINITY Extender Remote Module cannot produce the power required by the 8434D telephone. An MSP-1 (WP924644) power supply must be used. Check with your Lucent Technologies representative for ordering information.

- 603E Call Master III

- 8411D—soon to be available; however, the analog port will not function.

NOTE:
Lucent Technologies strongly advises against usihg non-Class B telephones (8410D, 8434D, and 603E Call Master III) in a non-commercial environment because this is a violation of FCC regulations.

Options

You can order a wall-mounted metal bracket (PEC 2174-MTG[A]) with a slide-in style sleeve for use with the Standalone Switch Module or the Remote Module. Rack-Mount Switch Modules may be ordered for use in the Multi-Mount Rack. Contact your Lucent Technologies representative for ordering information.

Specifications

The DEFINITY Extender system should operate properly with any standard telephone service. If the Switch and Remote Modules do not connect at a data rate of 19.2 kbps, contact your local telephone company for the available central office line options.

Table 1-1 shows the specifications of the standalone DEFINITY Extender Switch Module. Table 1-2 lists the specifications for the DEFINITY Multi-Mount Rack.

NOTE:
Specifications are subject to change without notice as technological or manufacturing changes warrant.

Table 1-**1. Standalone Switch Module Specifications**

Specification	Description
Size	8" x 8" x 1 1/2" (205 mm x 205 mm x 40 mm)
Weight	1.5 pounds (0.68 kilograms)
Power Requirements	12 vdc supplied by 120 vac adapters. 800 mA maximum
Approvals	UL CSA FCC Class A
Communication	
Data Type	V.32terbo modem
Data Impedance	600 Ohms
Data Tx Level	−15 dBm (+1 dBm/−3 dBm)
Data Rx Sensitivity	−40 to 0 dBm
User Data Port	
Data Type	RS-232
Data Rate Setting	19.2 kbps/9.6 kbps, no parity, 8 bit, 1 stop bit

Table 1-2. Multi-Mount Rack Specifications

Specification	Description
Size	19" W x 5 1/4" H x 9 5/8" D (482 mm x 133 mm x 245 mm)
Weight	4 pounds (1.79 kilograms)
Power Requirements	12 vdc supplied by 120 vac adapters. 5 V at 650 mA per Rack-Mount Module; 12 V at < 50 mA per Rack-Mount Module.
Capacity	12 ports within the 12-position Multi-Mount Rack
Approvals	UL CSA FCC Class A
Communication	
Data Type	V.32terbo modem
Data Impedance	600 Ohms
Data Tx Level	−15 dBm (+1 dBm/−3 dBm)
Data Rx Sensitivity	−40 to 0 dBm
User Data Port (one for each Rack-Mount Module)	
Data Type	RS-232
Data Rate Setting	19.2 kbps/9.6 kbps, no parity, 8 bit, 1 stop bit

Table 1-3. Rack-Mount Module Specifications

Specification	Description
Size	9" x 4" (229 mm x 102 mm)
Weight	4 pounds (1.79 kilograms)
Approvals	UL CSA FCC Class A
Communication	
Data Type	V.32terbo modem
Data Impedance	600 Ohms
Data Tx Level	−15 dBm (+1 dBm/−3 dBm)
Data Rx Sensitivity	−40 to 0 dBm

Considerations

Keep the following in mind when you use the DEFINITY Extender system:

- The DEFINITY Extender system is to be used with a DEFINITY ECS of Version 3, Release 3 or later.

- No custom calling features, such as Call Waiting or Call Forwarding, should be ordered for the line to which you connect the Switch Module.

   NOTE:
   A Call Waiting tone causes an interruption in the call, and the DEFINITY Extender system will begin the reconnect sequence.

- Sessions can be established only from the Remote Module.

- Only one Remote Module at a time can be "on-line" with the Switch Module.

- Order a separate central office (CO) line for each Switch Module and each Remote Module. Sharing lines or bridging the line on another station causes problems. For example, picking up an extension telephone causes the DEFINITY Extender call to drop.

- Be sure that the DEFINITY ECS port to which the Switch Module is connected is programmed correctly for the telephone being used.

- Authorized connections require that a password 8 to 10 digits in length be entered from the Remote Module. You should always use the full 10 digits.

⚠ **Security Alert:**

Using the Remote Module gains access to the features of the DEFINITY ECS, including access to WATS lines, FX lines, etc., which are subject to toll fraud. Passwords should be as long as allowed. Passwords should be hard to guess and therefore should not contain:

- *all the same numbers (for example, 88888888)*
- *sequential characters (for example, 987654321)*
- *character strings associated with you or with the remote user or with your business. These include:*
    - *Names*
    - *Birthdays*
    - *Business name*
    - *Telephone number*
    - *Social security number*
- *Words and commonly used names*

Passwords should use as wide a variety of characters as possible. Passwords should be changed regularly, at least on a quarterly basis. Do not recycle old passwords.

Password Programming

2

**How the system administrator programs the passwords into the
DEFINITY Extender Switch Module**

Before a Remote Module user can communicate with the Switch
Module, the system administrator must program a password for
each remote user.

Considerations

Consider the following when programming the Switch Module:

- Up to 100 passwords can be programmed into each Switch Module.

- Only one Remote Module at a time can be "on-line" with an individual Switch Module.

- Passwords are retained in non-volatile memory and are not affected by power outages.

- All passwords must contain 8 to 10 digits.

- Each password begins with two digits (00–99). The 00 password is reserved for the system administrator and can be used to change any of the remaining passwords.

Programming the Standalone Switch Module

The system administrator must program a password for each Remote Module connected to the Standalone Switch Module. To do this, you should directly connect a Remote Module to the Switch Module and program the passwords for all the Remote Modules that will be connected to this Switch Module.

Connecting the Standalone Switch Module to the Remote Module

Ideally you should initialize and test the Standalone Switch Module by dialing out to the Public Service Telephone Network (PSTN) and back into the DEFINITY ECS to establish a connection. Use specific, customer-supplied call-in numbers and passwords. If this is not possible, you must use a direct connection.

Follow these steps to directly connect a Remote Module and telephone to the Standalone Switch Module you want to program:

1. Turn DIP switch 2 on the back of the Remote and Switch Modules to the ON position. (This allows the connection of the modules without a telephone line.)

2. Turn DIP switch 3 on the Remote Module to ON. This enables the password menus.

3. Connect the Switch Module PORT jack to the 2-wire, 16-port TN2181 circuit pack on the DEFINITY ECS (see the *DEFINITY® Communications System Generic 3, Installation for Single-Carrier Cabinets* manual, document #555-230-894, comcode #107595423, for complete instructions).

4. Connect the PORT jack on the Remote Module to the LINE jack on one of the following telephones:

   - 8410D

   - 8410DR

   - 8434D

     NOTE:
     The power supply that comes with the DEFINITY Extender Remote Module cannot produce the power required by the 8434D telephone. An MSP-1 power supply must be used.

   - 603E Call Master III

   - 8411D when it becomes available (the analog port will not function).

5. Connect one end of the line cord supplied with the Remote Module to the LINE jack on the back of the Standalone Switch Module and the other end to the LINE jack on the back of the Remote Module.

6. Connect the AC adapters provided with each module to the Standalone Switch Module and the Remote Module. Plug each adapter into a standard 120-vac electrical outlet.

⚠ **CAUTION:**

Do not plug the A/C adapters into a 240-vac outlet because you will damage the adapter and the module. You must first obtain an adapter to convert 240 vac to 120 vac.

7. The display on the telephone initializes and reads:

```
2:OK 3:Nxt
          Go Online?
```
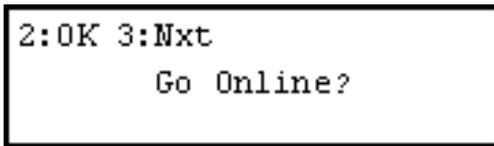
Logging Into the Standalone Switch Module

Setting and changing passwords stored in the Switch Module must be done through the Remote Module. Follow these steps to start the operation of the Remote Module:

1. At the "Go Online?" screen, press **2** on the display telephone to start the operation of the DEFINITY Extender system.

2. At this point, the Remote Module establishes the connection with the Switch Module. Figure 2-1 shows the sequence of messages that appear on the telephone display during connection of the Extender system.

```
┌─────────────────────────┐
│     Modem Init Test      │
└─────────────────────────┘
            │
            ▼
┌─────────────────────────┐
│   Waiting for Dialtone   │
└─────────────────────────┘
            │
            ▼
┌─────────────────────────┐
│         Dialing          │
└─────────────────────────┘
            │
            ▼
┌─────────────────────────┐
│   Waiting for Response   │
└─────────────────────────┘
            │
            ▼
┌─────────────────────────┐
│     Connect Sequence     │
└─────────────────────────┘
            │
            ▼
┌─────────────────────────┐
│        V.32 Terbo        │
└─────────────────────────┘
            │
            ▼
┌───────────────────────────────┐
│ Connected 19.2/16.8/14.4 Kbps │
└───────────────────────────────┘
            │
            ▼
┌─────────────────────────┐
│      Enter Password      │
└─────────────────────────┘
```
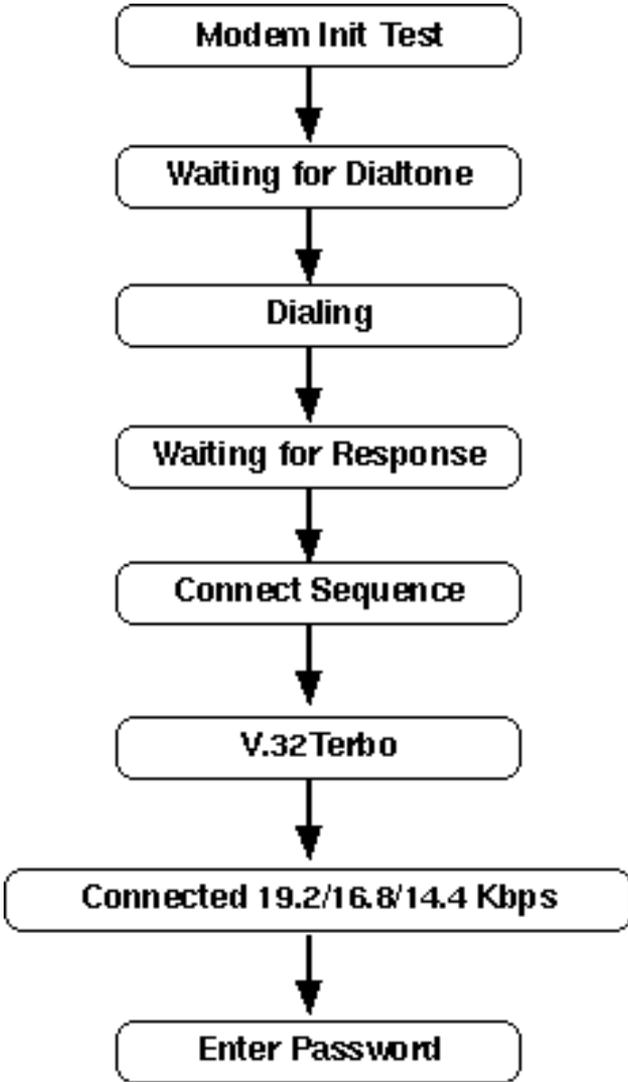
Figure 2-1. Connect Sequence for the Remote Module

3. At the "Enter Password" screen, enter your system administrator password, and press the **Drop** button on the telephone. A valid password must be entered to allow the telephone to be connected to the PBX.

    NOTE:
    If this is the first time you are entering your system administrator password, the default is "00000000." All Remote Module user passwords are disabled as a default.

!   **Security Alert:**

    Change your password as soon possible and store the new password in a secure place.

4. If a valid password has been entered, the Remote Module completes the connect sequence and the telephone isoperational. If an invalid password has been entered, you are prompted to re-enter the password. If after three attempts a valid password has not been entered, the Remote Module disconnects and the "Go Online?" prompt is displayed.

Programming Remote User Passwords

Up to 100 passwords can be programmed into the Switch Module. This allows a number of different users to access the Switch Module at different times. However, only one Remote Module user can be connected to an individual Switch Module at any one time.

The first two digits of each password identify each one of the 100 passwords (00–99). When you assign each remote user a two-digit user number, this user number becomes the first two digits of the user's password. A user is permitted to change only his or her own password. If the first two digits of the new password do not correspond to the user number, the new password is not accepted. An exception to the above is password "00" which is used by the system administrator.

NOTE:
If more than one Standalone Switch Module is connected to the DEFINITY ECS in a hunt group configuration, you should disable the remote users' capability of changing passwords by setting DIP switch 3 on the back of each Remote Module in the hunt group to the OFF position. The reason for this action is that if the user changes a password, the change is stored only in the Standalone Switch Module to which the user is connected and not in all the Standalone Switch Modules in the hunt group.

! **Security Alert:**

All information about changing passwords and DIP switches should be considered proprietary and should not be given to Remote Module users.

Passwords are changed by first entering the old password and then the new password. As the system administrator, you can disable any password (except password "00") by changing the password to a two-digit code (the number of the user whose password is to be disabled).

⚠ Security Alert:

A correct password permits the remote user access to the full DEFINITY ECS, including those areas, such as WATS lines, most liable to toll fraud. Passwords should be as long as allowed. Passwords should be hard to guess and therefore should not contain:

- *all the same numbers (for example, 88888888)*

- *sequential characters (for example, 987654321)*

- *character strings associated with you or with the remote user or with your business. These include:*

    — *Names*

    — *Birthdays*

    — *Business name*

    — *Telephone number*

    — *Social security number*

- *Words and commonly used names*

Passwords should use as wide a variety of characters as possible. Passwords should be changed regularly, at least on a quarterly basis. Do not recycle old passwords.

Follow these steps to program passwords for the Remote Module users:

1. After you have entered your password and the modules are connected, press the **Hold** button on the display telephone four times until the following screen appears:

```
2:OK 3:Nxt
          Disconnect?
```

2. Press **3** and the following screen appears:

```
1:Prv 2:OK 3:Nxt
          Re-connect?
```

3. Press **3** and the following screen appears:

```
1:Prv 2:OK 3:Nxt
       Change Password?
```

NOTE:
If the Software Version screen appears, make sure that DIP switch 3 on the Remote Module is set to ON. If it is necessary to move the DIP switch, you must power off and on the Remote Module after you move the DIP switch.

4. Press **2** to change a password. You will be prompted to enter the old password (a * will appear for each digit entered).

5. Enter the system administrator password (beginning with 00.)

6. A prompt for the new password appears. Enter the new password (8 to 10 digits), beginning with the remote user's two-digit code. If you want to disable a password, enter the first two digits only.

⚠ **Security Alert:**

Using the Remote Module gains access to the features of the DEFINITY ECS, including access to WATS lines, FX lines, etc., which are subject to toll fraud. Passwords should be as long as allowed. Passwords should be hard to guess and therefore should not contain:

- *all the same numbers (for example, 88888888)*

- *sequential characters (for example, 987654321)*

- *character strings associated with you or with the remote user or with your business. These include:*

    — *Names*

    — *Birthdays*

    — *Business name*

    — *Telephone number*

    — *Social security number*

- *Words and commonly used names*

Passwords should use as wide a variety of characters as possible. Passwords should be changed regularly, at least on a quarterly basis. Do not recycle old passwords.

7. Re-enter the new password at the prompt. Press the **Drop** button on the display telephone to accept the password.

8. Repeat Steps 4–7 for each user password.

Disconnecting

After you are finished programming the remote user passwords, you must discontinue the operation of the Remote Module from the Standalone Switch Module. Follow these steps:

1. From the Change Password screen, press **1** until the following screen appears:

```
2:OK 3:Nxt
        Disconnect?
```
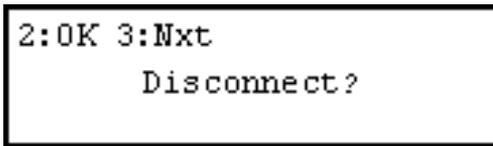
2. This "Disconnect" screen allows you to change your mind before totally disconnecting. To disconnect, press **2**. The disconnect sequence appears on the display; after a few seconds the "Go Online?" screen appears. This indicates you are disconnected.

   If you do not want to disconnect, *go to Step 3*.

⚠ **CAUTION:**

   Be sure that you have completely logged off by waiting for the "Go Online?" screen to appear. If you do not completely log off, the Remote Module may continue to try to re-establish the connection.

3. If you do not want to disconnect, press **3** at the "Disconnect" screen. The following screen appears:

```
1:Prv 2:OK 3:Nxt
        Re-connect?
```

4. Do one of the following:

    ■ Press **1** to return to the "Disconnect" screen and disconnect the system. The "Go Online?" screen appears, indicating that the DEFINITY Extender system is no longer connected.

    ■ Press **2** to reconnect and continue to program passwords by repeating Steps 2–7 under "Programming Remote User Passwords" above.

5. Reset DIP switches 2 and 3 to your desired settings.

    ■ DIP switch 2

        — OFF for standard telephone line

        — ON for dedicated line

    ■ DIP switch 3

        — OFF to *not* allow changing of password

        — ON to allow changing of password

Programming the Rack-Mount Modules

The Multi-Mount Rack has an Administration Port built into the back. If you connect your computer to this Administration Port, you can administer passwords and run diagnostics for all 12 Rack-Mount Switch Modules.

NOTE:
Before you can program the Rack-Mount Modules, you must install them into the Multi-Mount Rack. See Chapter 3, "Installation" for the procedure to do this.

You administer the passwords by using the Password Manager program. This program is not packaged with the Multi-Mount Rack or the Rack-Mount Switch Module; you must order it separately (PEC 2174-PSA[A]).

Connecting the Multi-Mount Extender Rack to the Computer or Terminal

Connect one end of a straight-through RS-232 cable to the Com Port on your computer and the other end to the DB9 Administration Port on the Multi-Mount Rack.

Password Manager Program

The Password Manager Program is the software that allows you to enter, sort, print, save, and upload passwords to the Rack-Mount Switch Modules.

⚠ Security Alert:
Save password files to a floppy disk only, and store the disk in a secure place.

NOTE:
Different from the Standalone Switch Module, the Multi-Mount Rack does not allow any administration by the Remote Module user. Consequently, Remote Module users cannot enable, change, or disable their own passwords; passwords can only be changed by the system administrator through the Password Manager Program.

Installing the Password Manager Program

Follow these steps to install the Password Manager Program onto an IBM-compatible computer with Windows™ Version 3.1 or higher:

1. Place the supplied diskette into the computer (normally Drive A).

2. From the Windows Program Manager, select RUN.

3. Type in A:\SETUP.EXE.

4. Press Enter.

The program proceeds to install itself.

Using the Password Manager Program

Once the Password Manager is installed, you only need to double-click the Security icon in the Security window to start the program. However, you must know basic keyboard and mouse techniques in Windows to make selections.

Keyboard and Mouse Techniques

Table 2-1 explains terms and techniques used with the Password Manager.

Table 2-1. Mouse Terms

Term	Meaning
Click	To quickly press and release the mouse button
Double-click	To click the mouse button twice in rapid succession
Drag	To hold down the mouse button while you move the mouse
Point	To move the mouse until the mouse pointer rests on the desired item

To select an item, click on the menu heading. The menu list drops down. Drag your mouse to the item you want, and release the mouse button.

You can also use shortcut-key combinations to select items. These combinations are shown to the right of a menu item. Instead of using the mouse to drop down a menu and select an item, you can press the key combination. For example, to upload passwords, press F3 instead of selecting the Com Link menu and choosing the Upload Passwords menu item.

Menu and Item Selection

You can use the mouse or the keyboard to select menus and items.

To select a menu or item with the mouse, point to the name of the menu or item and click the left mouse button.

To select a menu or item via the keyboard, do the following:

1. Press **ALT** or **F10** to select the menu bar.

2. Do one of the following to open a menu:

    a. Press the left or right arrow key to move to the menu you want, and press **ENTER**.

    b. If the menu name has an underlined letter, type the underlined letter to open the menu. For example, press **ALT**, **F** to open the File menu.

3. Do one of the following to select an item:

    a. Press the up or down arrow key to move to the item you want, and press **ENTER**.

    b. If the item name has an underlined letter, type the underlined letter to open the menu. For example, press **ALT**, **F**, **O** to open a program file.

Password Manager Menus and Commands

Table 2-2 lists the menus and menu commands available in the Password Manager program.

Table 2-2. Password Manager Menus and Commands

Menu	Menu Commands	Description
File	New File You can also use the New File button.	Create a new password file. If you have made changes to an existing file, the program displays a prompt asking if you want to save changes to the existing file.
	Open File You can also use the Open File button.	Open an existing password file.
	Save File You can also use the Save File button.	Save the current password file. If you have not yet named the file, the program displays the Save As window.

Table 2-2. Password Manager Menus and Commands (*Continued*)

Menu	Menu Commands	Description
File (*continued*)	Save As	Save a new file or save an existing file under a new name. The program displays the Save As window, from which you can choose the drive and directory and enter the file name. ⚠️ **Security Alert:** *Save password files to a floppy disk only, and store the disk in a secure place.*
	Print You can also use the Print button. 🖨️	Print the current password file.

Table 2-2. Password Manager Menus and Commands (*Continued*)

Menu	Menu Commands	Description
Com Link	Set Logout Code	Set the logout code for each Rack-Mount Switch Module. The logout code is used for the DEFINITY ECS Terminal Translation Initialization (TTI) feature. If the connection from the Remote Module is lost, the Switch Module automatically logs the user out of the DEFINITY ECS. The user can then reconnect at the same or a different port.
		The logout code cannot exceed 16 characters in length. Only 15 different characters may be used for the code. These characters include U, D, comma (,), 0, 1, 2,3, 4, 5, 6, 7, 8, 9, #, and *. The U stands for the receiver off-hook, the D stands for the receiver on-hook, and the comma represents a two-second delay. The remaining characters represent the numeric keypad on the telephone.

Table 2-2. Password Manager Menus and Commands (*Continued*)

Menu	Menu Commands	Description
Com Link (*continued*)	Select Cards	Selects the Rack-Mount Switch Modules installed in the Multi-Mount Rack that are to be programmed. The selected modules can be uploaded with the current passwords and the logout codes programmed in the current password file.
	Com Port	Select the communications port on your computer to which the Multi-Mount Rack is connected.
	Upload Passwords You can also use the Upload button. 	Uploads the passwords and logout codes programmed in the current password file to the modules selected via the Select Cards menu command.
	Verify Passwords	Compares the passwords in the current password file with the passwords uploaded to the Multi-Mount Rack. Discrepancies appear on the window. The information displayed includes the user number and the Rack-Mount Module on which the discrepancy exists.

Table 2-2. Password Manager Menus and Commands (*Continued*)

Menu	Menu Commands	Description
Com Link (*continued*)	Set Password	Sets the password required to upload or verify passwords. The current password remains the same until the program is closed or until a new password is set. The password does not include the user number.
Sort	Sort Options	Select the order in which the current password file is to be sorted. To sort alphabetically by the user name, select Sort by Name. To sort numerically by user ID, select Sort by Number.
	Sort (F2)	Sort the current password file according to the option chosen by using the Sort Options command.
Help	Contents (F1)	Display contents and help information on selected topics.
	About Password Manager	Display the current version of the Password Manager program.

Administering Passwords

Follow these steps to start the Password Manager:

1. To start the Password Manager Program, double-click the Security icon. The main Password Manager window appears (see Figure 2-2).

```
┌─────────────────────────────────────────────┐
│ ═   Password Manager (untitled.fil)    ▼  ▲ │
│ File   Comm Link   Sort   Help              │
│ ┌─┐┌─┐┌─┐┌─┐┌─┐ ┌────────┐┌──────┐┌────────┐│
│ │D││▣││⤢││🖨││▦│ │ Random ││Enable││Disable ││
│ └─┘└─┘└─┘└─┘└─┘ └────────┘└──────┘└────────┘│
│  Icon :                                     │
│                                             │
│    User ID   User Password    User Name     │
│                                             │
│    user00   00000000    ┌─────────────┐   ▲ │
│    user01   DISABLED    └─────────────┘     │
│    user02   DISABLED                        │
│    user03   DISABLED                        │
│    user04   DISABLED                        │
│    user05   DISABLED                        │
│    user06   DISABLED                        │
│    user07   DISABLED                        │
│    user08   DISABLED                        │
│    user09   DISABLED                        │
│    user10   DISABLED                        │
│    user11   DISABLED                        │
│    user12   DISABLED                        │
│    user13   DISABLED                        │
│    user14   DISABLED                      ▼ │
│    user15   DISABLED                        │
│                                             │
└─────────────────────────────────────────────┘
```

Figure 2-2.   Main Password Manager Window

2. Select Com Port from the Com Link menu. The Port Selection window appears (see Figure 2-3). The currently programmed comm port is indicated by a black dot in the option button next to the selection.

```
                    ┌─────────────────────────────────┐
                    │         Port Selection          │
                    ├─────────────────────────────────┤
                    │  ⌐ Comm Port 1   ⌐ Comm Port 3  │
                    │                                 │
                    │  ⊙ Comm Port 2   ⌐ Comm Port 4  │
                    │  ┌────────┐ ┌────────┐ ┌───────┐ │
                    │  │   OK   │ │ Cancel │ │ Help  │ │
                    │  └────────┘ └────────┘ └───────┘ │
                    └─────────────────────────────────┘
```
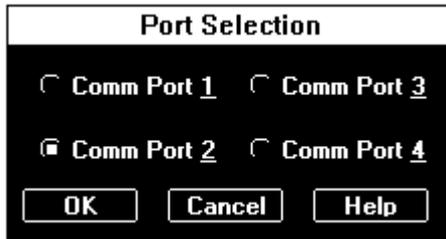
Figure 2-3.   Port Selection Window

3. Point to the Com Port to which the Extender Rack is connected
   (Com Port 1, Com Port 2, Com Port 3 or Com Port 4), and click
   the left mouse button to select the correct communications port.

   You can also type the number of the comm port. For example,
   to select Com Port 2, type 2 and a black dot appears in the
   option button next to your choice . If you prefer, you can use the
   ARROW keys to move the black dot to your selection.

4. Click on OK or press **ENTER**.

5. Select Set Password from the Com Link menu.

6. On the Administrator window, enter the current System
   Administrator password for Card A (see Figure 2-4).

NOTE:
The administrator password you enter on this window is always
Card A's user00 password regardless of the cards selected for
password upload. The default password for user00 is "00000000"
as shown on the window the first time you use the Password
Manager.

```
                    Administrator
              Enter Administrator Password

              ┌─────────────────────────────┐
              │ ‪‪‪‪‪‪‪‪                       │
              └─────────────────────────────┘

              ┌────────┐  ┌────────┐  ┌────────┐
              │   OK   │  │ Cancel │  │  Help  │
              └────────┘  └────────┘  └────────┘
```
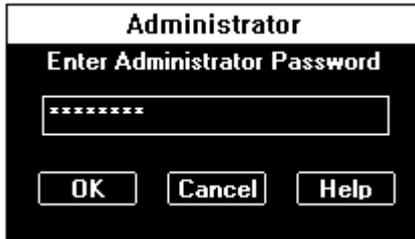
Figure 2-4.   Administrator Window

7. Click on Okay or press **ENTER**.

Programming Remote User Passwords

Up to 100 passwords can be programmed into each Rack-Mount
Switch Module installed in the Extender Rack. This allows a
number of different remote users to access each individual Rack-
Mount Switch Module at different times. However, only one Remote
Module user can be connected to an individual Rack-Mount Switch
Module at any one time.

Each user (including the System Administrator) is assigned a user
ID consisting of the word "user" and ending with a two-digit user
number. The System Administrator ID is "user00." When you
assign a password, the Password Manager program automatically
adds two digits (00–99) to the beginning of the password that
correspond to the two-digit user ID number associated with the
password. A remote user cannot change his or her password. All
changes and additions must be done by you, the System
Administrator.

⚠ **Security Alert:**

A correct password permits the remote user access to the full DEFINITY ECS, including those areas, such as WATS lines, most liable to toll fraud. Passwords should be as long as allowed. Passwords should be hard to guess and therefore should not contain:

- *all the same numbers (for example, 88888888)*

- *sequential characters (for example, 987654321)*

- *character strings associated with you or with the remote user or with your business. These include:*

    — *Names*

    — *Birthdays*

    — *Business name*

    — *Telephone number*

    — *Social security number*

- *Words and commonly used names*

Passwords should use as wide a variety of characters as possible. Passwords should be changed regularly, at least on a quarterly basis. Do not recycle old passwords.

Follow these steps to program passwords for Remote Module users:

1. Follow the instructions above under "Starting the Password Manager program, and enter the System Administrator password.

2. If you are creating a new password file, go to Step 3. To modify a previous password file, select Open from the File menu and select the applicable directory, drive, file type and file name from the Open window.

The Password Manager window appears with the programmed information.

To view the information in alphabetical order by user name, select Sort by Name from Sort Options under the Sort menu. Then select Sort from the Sort menu.

To view the information in numerical order by user ID, select Sort by Number from the Sort menu. Then select Sort from Sort Options under the Sort menu.

3. Choose Select Cards from the Com Link menu. The Card Selection window appears (see Figure 2-5).
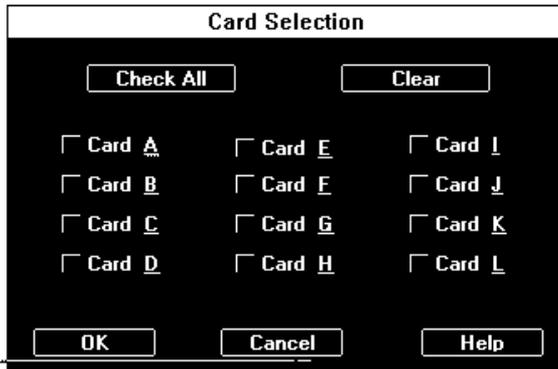
Figure 2-5.   Card Selection Window

4. Point to the Switch Module(s) installed in the Extender Rack to
    which you want to upload passwords and logout codes (Cards
    A through L), and click the left mouse button. A black "x"
    appears in the option button next to the selection you chose. If
    you want to upload passwords and logout codes to all the cards
    installed in the Extender Rack, point to Check All and click the
    left mouse button. A black "x" appears next to all cards on the
    window.

    You can also type the letter of the card(s) for which you want to
    upload passwords and logout codes. For example, to select
    Card A, type "a" or "A," and a black "x" appears in the option
    button next to your choice.

    To clear your selection(s), point to the selected card and click
    the left button or type the corresponding card letter. The black
    "x" in the option button is cleared. To clear all selections, point
    to Clear and click the left button.

5. Click on OK or press **ENTER**. The Password Manager window
    appears.

6. To assign and enable, change, or disable a password, point to
    the first User ID, User Password, or User Name block you want
    to change, and double-click the left mouse button.

    You can also use the ARROW keys to highlight your choice and
    press **ENTER**.

The window in Figure 2-6 appears with the cursor in the password block.

Figure 2-6. Password Entry Window

7. To assign or change a password, do the following:

   a. Type a six- to eight-digit number in the password block.

⚠ Security Alert:

A correct password permits the remote user access to the full DEFINITY ECS, including those areas, such as WATS lines, most liable to toll fraud. Passwords should be as long as allowed. Passwords should be hard to guess and therefore should not contain:

- *all the same numbers (for example, 88888888)*

- *sequential characters (for example, 987654321)*

- *character strings associated with you or with the remote user or with your business. These include:*

    — *Names*

    — *Birthdays*

    — *Business name*

    — *Telephone number*

    — *Social security number*

- *Words and commonly used names*

Passwords should use as wide a variety of characters as possible. Passwords should be changed regularly, at least on a quarterly basis. Do not recycle old passwords.

NOTE:
If you prefer to allow the Password Manager program to randomly assign a password, click on the Random button. An eight-digit number appears in the password block, a black "x" appears in the Enable Password option button, and your cursor moves to the User Name block.

b. Click on the Enable Password option button, and a black "x" appears next to the Enable Password option. Press the Tab key twice to move your cursor to the User Name block.

    c. Type the user's last name followed by a comma and the user's first name. You can use upper- and lower-case letters to enter the information.

8. To disable a password, click on the Enable Password option button. The black "x" in the option button is cleared, and the word DISABLED appears in the password number block. The password is disabled and cannot be used.

NOTE:
The assigned password information is retained in the file but not displayed on the window. If at a later date you decide to enable the user password, the previously assigned password appears in the password block when you click on Enable Password. You can keep the password and/or user name or assign a new password and/or user name by using the procedure described above.

9. Click on NEXT and repeat Step 7 for each user password.

10. When you have finished with user passwords, click OK, and the Password Manager window reappears with the information you have just entered (see Figure 2-7). Select Save File from the File menu. If you are creating a new file, the Save As window appears. Choose the directory and drive, and type the file name. Be sure to include ".fil" in your file name to ensure the file is displayed when you want to open the file in the future.

```
┌─────────────────────────────────────────────────┐
│ ═  Password Manager (untitled.fil)      ▼│▲ │
│  File   Comm Link   Sort   Help                  │
│ ┌──┬──┬──┬──┬──┐ ┌────────┐┌────────┐┌─────────┐│
│ │D │🖫│🖙│🖶│🖳│ │ Random ││ Enable ││ Disable ││
│ └──┴──┴──┴──┴──┘ └────────┘└────────┘└─────────┘│
│  Icon :                                          │
│                                                  │
│   User ID   User Password      User Name         │
│                                                  │
│   user00   00000000    ADMINISTRATOR        ┌─┐ │
│   user01   0168443978  Fred                 │▲│ │
│   user02   0294478933  Linda                ├─┤ │
│   user03   0364399241                       │ │ │
│   user04   DISABLED                         │ │ │
│   user05   DISABLED                         │ │ │
│   user06   DISABLED                         │ │ │
│   user07   DISABLED                         │ │ │
│   user08   DISABLED                         │ │ │
│   user09   DISABLED                         │ │ │
│   user10   DISABLED                         │ │ │
│   user11   DISABLED                         │ │ │
│   user12   DISABLED                         │ │ │
│   user13   DISABLED                         │ │ │
│   user14   DISABLED                         │ │ │
│   user15   DISABLED                         │▼│ │
│                                             └─┘ │
└─────────────────────────────────────────────────┘
```

Figure 2-7.   Password Manager Window with Entered Passwords

⚠ **Security Alert:**

Save the password file to a floppy disk only, and store the disk in a secure place.

11. To print the file, select Print from the File menu.

12. If you want to compare the currently programmed passwords with the passwords uploaded in the Extender Rack, select Verify Passwords from the Com Link menu. Any differences from the currently displayed password file and the uploaded passwords on the Extender Rack are displayed. The information displayed includes the user number and the Switch Module on which the difference exists.

13. To upload the programmed passwords and logout codes to the Switch Modules you chose in Step 3, select Upload Passwords.

    NOTE:
    If you did not select any Switch Modules, the program displays an error message advising you that no cards have been selected. When you click on OK, the program automatically displays the Card Selection window to allow you to select the Switch Module(s) to which you want to upload passwords. Follow the instructions in Step 4 to select the module(s).

14. When programming is complete, exit the Password Manager by selecting Exit from the File menu.

Installation

3

How to install the DEFINITY® Extender Switch Module

After you have programmed passwords for the Standalone Switch Module, you can physically install it. Installing the Standalone Switch Module involves choosing a proper location and connecting the LINE, PORT, and power cords.

Installing the Multi-Mount Rack also involves choosing a proper location and connecting the power cord. But the Administration Port is a 9DB port going to a computer, and the LINE port is replaced by a 50-pin Amphenol connector. The system administrator must supply the required data cable and the 25-pair Amphenol cable.

NOTE:
The Multi-Mount Rack and the Rack-Mount Modules must be installed before you can program the Rack-Mount Modules.

Location Requirements

To ensure successful operation of the DEFINITY Extender system, place the Switch Module within 500 feet (150 meters) of the DEFINITY ECS. The Standalone Switch Module may be mounted in any position or may be wall-mounted by using the optional wall-mount bracket. Install the module's power supply and cabling away from high-power/high-RF noise devices such as computers, fans, fluorescent ballasts, and power supplies.

Electrical Requirements

Use only the AC adapters provided with the DEFINITY Extender system. The Extender has been designed to operate from 120 vac 60 Hz.

⚠ CAUTION:

Do not apply power to the Switch Module until specifically instructed in the installation procedures.

NOTE:
Lucent Technologies strongly recommends that you supply both power and central office line surge protection for the PBX location and the remote location. Lucent Technologies recommends the 147C Line Surge Protector (#8310-006). Contact your Lucent Technologies representative for ordering instructions

Wiring Requirements

Use twisted-pair cable for all standalone connections.

Connecting the Standalone
Switch Module

All connections to the Standalone Switch Module are done via the back panel (see Figure 3-1). Presently no ports are installed for VOICE or COM 2. The current back panel elements are:

- LINE is the connection between the Switch Module and the DEFINITY ECS analog circuit pack or the central office line for transmission of the signaling information. The circuit packs to which the Switch Module can be connected are the 8-port TN742 and the 16-port TN746.

- PORT is the connection between the DEFINITY ECS 2-wire, 16-port circuit pack (TN2181) and the Switch Module.

- COM 1 provides for simultaneous RS-232 communication between equipment at the off-premise site and the on-premise site.

- +12VDC is the connection for the A/C adapter.

- The DIP switch under OPT is used for system configuration.
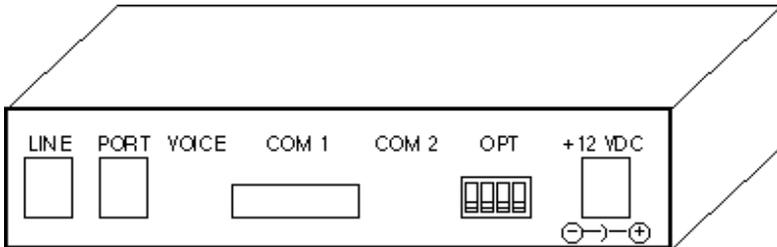
Figure 3-1. Standalone Switch Module Back Panel

In addition to the back panel connections, a three-color light-emitting diode (LED) is visible through the top of each unit and provides information about the status of the equipment.

Installation Procedure

Installing the Standalone Switch Module involves wiring the module to the DEFINITY ECS and connecting the power cord. You will need the applicable wiring to connect the Switch Module to the DEFINITY ECS. See the *DEFINITY® Communications System Generic 3, Installation for Single-Carrier Cabinets* manual, document #555-230-894, comcode #107595423, for complete installation requirements.

Following installation, administer the line and station ports that use the Standalone Switch Module according to the instructions in *DEFINITY® Communications System Generic 3 Implementation Guide, Issue 1,* document #555-230-655.

Follow these steps to install the Switch Module:

1. Ensure that the module has the proper DIP switch configuration (see Table 3-1).

Table 3-1. DIP Switch Configuration

Switch #	OFF	ON
1	Normal operation	Reserved
2	Standard telephone line	Dedicated line
3	Disable changing of password	Enable changing of password
4	Normal operation	Test mode

NOTE:
If the Standalone Switch Module is connected to a standard central office line or to a DEFINITY analog circuit pack, DIP switch 2 should be set to OFF during normal operation. If the Standalone Switch Module or Remote Module is connected to a dedicated line that does not require dialing for connection, DIP switch 2 should be ON during normal operation.

⚠ **CAUTION:**
Do not plug the A/C adapters into the electrical outlets until instructed to do so in the following procedure.

> ⚠ **CAUTION:**
>
> *Connecting the Remote Module to the PBX can result in damage to the module. Prior to installation, check that you have the Standalone Switch Module by looking at the name on the top of the unit.*

2. Connect the wiring between the DEFINITY analog circuit pack (the 8-port TN742 or the 16-port TN746) or a dedicated central office line and the LINE jack of the Standalone Switch module at the on-premise location. See the *DEFINITY® Communications System Generic 3, Installation for Single-Carrier Cabinets* manual for complete instructions.

3. If you have not already done so while programming passwords, connect the Standalone Switch Module PORT jack to the 2-wire, 16-port TN2181 circuit pack on the DEFINITY ECS. See the *DEFINITY® Communications System Generic 3, Installation for Single-Carrier Cabinets* manual for complete instructions.

> ⚠ **CAUTION:**
>
> *Do not plug the line cord into the PORT jack of the Standalone Switch Module. Damage to circuits may result.*

4. Connect the AC adapter provided with your system to the Standalone Switch Module. Plug the adapter into a standard 120-vac electrical outlet**.**

> ⚠️ **CAUTION:**
>
> *Do not plug the A/C adapters into a 240-vac outlet because you will damage the adapter and the module. You must first obtain an adapter to convert 240 vac to 120 vac.*

5. Administer the line (if applicable) and station ports by using the procedures in the *DEFINITY® Communications System Generic 3 Implementation Guide, Issue 1,* document #555-230-655.

   - If the Standalone Switch Module is connected to an analog circuit pack, you should administer the line port for Direct Inward Dialing (DID) operation.

   - Administer the station port as you would any other on-premise station.

Connecting the Multi-Mount
Rack and Rack-Mount Modules

Connections to the Multi-Mount Rack are done via the back panel (see Figure 3-2). The back panel elements are:

- 50-pin Amphenol port connects the Multi-Mount Rack to the DEFINITY ECS analog circuit pack and the central office lines for transmission of the signaling information. The circuit packs to which the Rack-Mount Switch Modules can be connected are the 8-port TN742 and the 16-port TN746.

- Administration Port connects the Multi-Mount Rack and Rack-Mount Modules to the administering computer or terminal.

- DB9 ports for each Rack-Mount Module (A–L) provide for simultaneous RS-232 communication between equipment at the off-premise site and the on-premise site.

- Four-position connector for the power supply that has a matching plug on the power supply. The connector is polarized and can be connected only in one way.
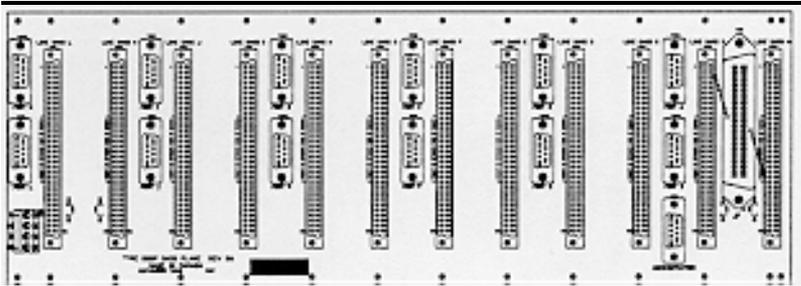
Figure 3-2. Multi-Mount Rack Back Panel

Installing the Multi-Mount Rack

Connections to the port on the DEFINITY ECS and to the analog line are made through a 50-pin Amphenol connector, which the customer must supply. This connector provides the connections for all 12 Rack-Mount Modules (listed as Cards A–L). See the *DEFINITY® Communications System Generic 3, Installation for Single-Carrier Cabinets* manual, document #555-230-894, comcode #107595423, for complete installation requirements.

Table 3-2 shows the 50-pin connector pinout.

NOTE:
The pin connections for the 50-pin connector are not polarity-sensitive. Therefore, if you reverse the tip and ring pair, service is not affected.

Table 3-2. 50-Pin Connector Pinout

25-Pair Cable				110-Type, 66-Type Wiring/Conn Block Terminals
Pin No.	Pair	Color	Connection	
26	1	W-BL	Card A, Line	1
1		BL-W		2
27	2	W-O	Card B, Line	3
2		O-W		4
28	3	W-G	Card C, Line	5
3		G-W		6
29	4	W-BR	Card D, Line	7
4		BR-W		8
30	5	W-S	Card E, Line	9
5		S-W		10
31	6	R-BL	Card F, Line	11
6		BL-R		12
32	7	R-O	Card G, Line	13
7		O-R		14
33	8	R-G	Card H, Line	15
8		G-R		16
34	9	R-BR	Card I, Line	17
9		BR-R		18

Table 3-2.   50-Pin Connector Pinout (*Continued*)

25-Pair Cable				110-Type, 66-Type Wiring/Conn Block Terminals
Pin No.	Pair	Color	Connection	
35	10	R-S	Card J, Line	19
10		S-R		20
36	11	BK-BL	Card K, Line	21
11		BL-BK		22
37	12	BK-O	Card L, Line	23
12		O-BK		24
38	13	BK-G	—	25
13		G-BK		26
39	14	BK-BR	Card A, DCP Port	27
14		BR-BK		28
40	15	BK-S	Card B, DCP Port	29
15		S-BK		30
41	16	Y-BL	Card C, DCP Port	31
16		BL-Y		32
42	17	Y-O	Card D, DCP Port	33
17		O-Y		34
43	18	Y-G	Card E, DCP Port	35
18		G-Y		36

Table 3-2.   50-Pin Connector Pinout (*Continued*)

25-Pair Cable				110-Type, 66-Type Wiring/Conn Block Terminals
Pin No.	Pair	Color	Connection	
44	19	Y-BR	Card F, DCP Port	37
19		BR-Y		38
45	20	Y-S	Card G, DCP Port	39
20		S-Y		40
46	21	V-BL	Card H, DCP Port	41
21		BL-V		42
47	22	V-O	Card I, DCP Port	43
22		O-V		44
48	23	V-G	Card J, DCP Port	45
23		G-V		46
49	24	V-BR	Card K, DCP Port	47
24		BR-V		48
50	25	V-S	Card L, DCP Port	49
25		S-V		50

Follow these steps to install the Multi-Mount Rack:

⚠️ **CAUTION:**

Do not plug the A/C adapters into the electrical outlets until instructed to do so in the following procedure.

1. Create a cross-connect or wall field so that the 50-pin Amphenol cable can be used to connect the DEFINITY analog circuit pack (the 8-port TN742 or the 16-port TN746) and dedicated central office lines to the 50-pin Amphenol port on the Multi-Mount Rack (see Figure 3-3). See the *DEFINITY® Communications System Generic 3, Installation for Single-Carrier Cabinets* manual for complete instructions.
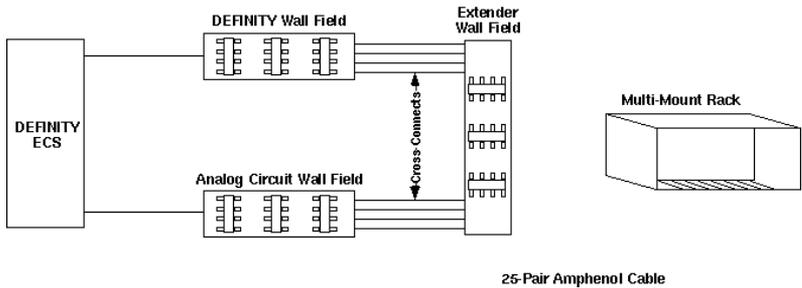
Figure 3-3. Cross-Connect or Wall Field

2. Connect the Administration Port to the system administrator's computer or terminal by using an RS-232 DB9 cable.

3. Connect the AC adapter provided with your system to the Multi-Mount Rack. Plug the adapter into a standard 120-vac electrical outlet**.**

![!] **CAUTION:**

Do not plug the A/C adapters into a 240-vac outlet because you will damage the adapter and the module. You must first obtain an adapter to convert 240 vac to 120 vac.

Installing the Rack-Mount Modules

The Rack-Mount Modules slide into the Multi-Mount Rack. The Multi-Mount Rack holds up to 12 Rack-Mount Modules. Follow these steps to insert the Rack-Mount Modules:

1. Line up the top and bottom edges of the Rack-Mount Module circuit board with the top and bottom grooves on the Multi-Mount Rack. The top edge is the one with the ejector button, and the bottom edge is the one with the light-emitting diode (LED).

2. Gently push the Rack-Mount Module into the Multi-Mount Rack until the connector on the back of the Rack-Mount Module seats itself into the connector on the Multi-Mount Rack.

Administering the Line and Station Ports

Administer the line (if applicable) and station ports by using the procedures in the *DEFINITY® Communications System Generic 3 Implementation Guide, Issue 1,* document #555-230-655.

- If the Multi-Mount Rack is connected to an analog circuit pack, you should administer the line ports for Direct Inward Dialing (DID) operation.

- Administer the station ports as you would any other on-premise stations.

Connections for Data Transmission

By using the COM 1 port on the Switch Module, you can establish simultaneous data transmission between the off-premise location and the on-premise location. Typically this involves a personal computer (a "remote data terminal") at the off-premise location communicating with an RS-232 server link on-premise (at the DEFINITY ECS location).

NOTE:
The factory setting for the data transmission rate is 9.6 kbps. If the user at the Remote Module changes the rate to 19.2 kbps, the Switch Module rate will also change to 19.2 kbps. Any change must be done from the Remote Module.

To connect the server at the on-premise location to the COM 1 port of the Standalone Switch Module, use a straight-through, 9-pin RS-232 cable (see Figure 3-4).

To connect the on-premise server to the Multi-Mount Rack, again use a straight-through, 9-pin RS-232 cable. However, in this case the cable connects to the DB9 connector on the back of the desired Rack-Mount Module.

```
DCD 1 ——————————————— 1 DCD
DSR 6 ——————————————— 6 DSR
CTS 8 ——————————————— 8 CTS
DTR 4 ——————————————— 4 DTR
RXO 2 ——————————————— 2 RXI
TXO 3 ——————————————— 3 TXO
GND 5 ——————————————— 5 GND
```
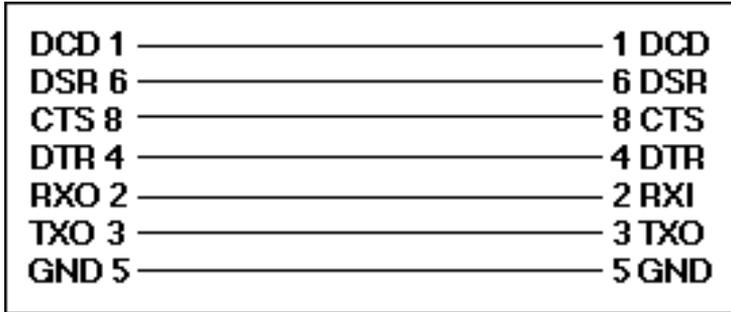
Figure 3-4. RS-232 Cable Pin Connections

NOTE:
The DEFINITY Extender modules use the CTS lead for flow
control. When the internal buffer is 32 characters from full, the CTS
lead is turned off. While CTS is off, up to an additional 32
characters can be transmitted without any loss of data. If hardware
flow control is not enabled or if a cable without the CTS lead is
used, characters will be lost when this buffer overflows.

The DEFINITY Extender modules use the DCD lead to indicate
whether or not the modules have made a connection. When this
lead is on, the modules have made connection.

Troubleshooting

4

Troubleshooting and LED Activity

As with all equipment of a sophisticated nature, occasionally an error in connection or transmission may occur. The DEFINITY Extender system provides indication of any errors via light-emitting diodes (LEDs) on the Remote and Switch Modules and by error messages on the display telephone connected to the Remote Module.

Troubleshooting

When an error occurs in the operation of the Switch Module, you should check for malfunctions in an organized manner. Follow these steps when troubleshooting the Switch Module:

1. Check all interconnecting cables to ensure that they are properly seated.

2. Verify that the DIP switches are set correctly.

3. Check the circuits to ensure that they are free of noise and meet the specifications listed in Chapter 1, Introduction.

4. Verify that the power LEDs are illuminated.

5. If you cannot locate the source of the problem, contact Lucent Technologies by calling 1 800 242-2121 at any time. Please have ready the serial number found on your Switch Module and a description of the problem.

If a remote user reports a problem with the Remote Module, verify that the user has followed the appropriate troubleshooting steps:

1. Verify that the programmed telephone number is correct.

2. Check all interconnecting cables to ensure that they are properly seated.

3. Verify that the DIP switches are set correctly.

4. Check the circuits to ensure that they are free of noise and meet the specifications listed in Chapter 1, Introduction.

5. Verify that the power LEDs are illuminated.

If you must contact Lucent Technologies on behalf of the remote user, be sure to obtain the serial number found on the Remote Module.

LED Sequences

The LEDs on the Standalone Switch Module and the Rack-Mount Switch Module help to indicate problems that occur.

Standalone Switch Module

The following flash sequences may be observed on the Standalone Switch Module:

- 1 Green: Online to Remote Module

- 2 Green: Dial mode; waiting for ring

- 3 Green: Leased line mode; waiting for connect sequence

- 4 Green: Dial mode connect sequence

- 3 Red: Waiting for PBX connection

- 3 Yellow: Test mode

NOTE:
During the power-up sequence, the DEFINITY Extender system performs a self-test, indicated by a sequence of eight red flashes.

Multi-Mount Rack

The Multi-Mount Rack's LED blink sequence helps to identify a malfunctioning interface card. Problem cards are identified by a red/green blink in the LED blink sequence. Table 4-1 shows the LED blink sequences for the Rack-Mount Switch Module The sequences are listed in the order of priority.

Table 4-1.   Rack-Mount Module LED Blink Sequence

LED Sequence	Meaning
RGRG	Module has been flagged by Remote user. A Remote Module user can flag a Rack-Mount module when he or she is having audio and/or other problems on a particular connection. The remote user does this by pressing the **Hold** key four times and then pressing the **#** key when the display shows "Disconnect?". This causes the DEFINITY ECS and the module connected to this remote user to display this sequence until either the module is unplugged or the module's diagnostics counts are reset through the Administration Port.
RRR	Module is waiting for connection to DEFINITY DCP port.
RRGG	Module has not detected a ring on analog line connection since power-up or since the diagnostic counts have been reset. If this LED sequence continues for a long time, this indicates a serious problem, such as incorrect wiring.

Continued on next page

Table 4-**1.   Rack**-**Mount Module LED Blink Sequence (*Continued*)**

LED Sequence	Meaning
RRG	Module has detected at least one ring but is waiting for a ring on analog line connection. Since power-up or since diagnostic counts have been reset, the Rack-Mount Module has not been successfully connected to the Remote Module.
RGG	Module is waiting for ring on analog line. The Rack-Mount Module has had at least three connect sessions with a Remote Module, but each session has lasted less than an hour.
RGGGG	Module is attempting to connect to a Remote Module but has not been connected to a Remote Module within the last three connect sessions for at least one hour.
RG	Module is online to a Remote Module but has not been connected to a Remote Module within the last three connect sessions for at least one hour.
GG	Module is waiting for a ring on the analog line; no abnormalities have been detected.
GGGG	Module is attempting to connect to a Remote Module; no abnormalities have been detected.
G	Module is online to a Remote Module; no abnormalities have been detected.

Error Messages

If a problem has been encountered during the connection process, an error message appears on the remote telephone. Table 4-2 shows the error messages and the suggested actions to take.

Table 4-2. Error Messages

Message	Cause	Action
No Dial Tone	The Remote Module is not properly connected to the local telephone company.	Connect a regular telephone to the telephone company jack, and listen for dial tone. Make sure the line is properly connected to the jack on the Remote Module. If there still is no dial tone, have the local telephone company check the line.
Line Busy	The line that the Switch Module is connected to is already in use.	Verify that the correct telephone number has been programmed and that no one else is using the Switch Module the remote user is calling.

Continued on next page

Table 4-1. Error Messages—*Continued*

Message	Cause	Action
No Answer Tone	The Switch Module is not responding. The Remote Module does not receive a Ring-Back Tone or an Answer Back Tone.	Verify that the correct telephone number has been programmed. Verify that the Switch Module is connected to the line.
Rate Too Slow	The rate at which the modem is connecting is not fast enough to allow for successful operation of the system.	Have the local telephone company lines checked.

Specific Problems

Problems that may develop with the DEFINITY Extender system usually reflect what type of line is being used, dial line or dedicated line. In either case you should try the Switch Modules at the DEFINITY ECS location so you can determine if the problem is with the Switch Module or with the communications system.

Dial Line Problems

The following problems may occur with Switch Modules connected to analog dial lines. The possible steps to solve the problem are listed after each problem's heading.

No Display on Telephone at Remote Location

To correct this problem, answer or do the following:

1. Is the correct module at each location?

2. If this is an existing installation, has the installation moved or has any new wiring been done? Verify the connections.

3. Does the Remote Module have power?

4. Compare the LED on the Remote Module to the LED diagnostic sheet. The Remote Module may be defective.

5. Is the telephone working properly?

No Connection/No Answer
Tone

To correct this problem, answer or do the following:

1. Does the display on the telephone say "Go Online"? If so, press **2** to start the session. (A new user may never have seen the Remote Module off-line before.)

2. Check the power connection on the Switch Module.

3. Check the LED on the Switch Module and compare it to the LED diagnostic sheet. The Switch Module may be defective.

4. Check that the DIP switches on the Switch and Remote Modules are set for dial line (DIP switch #2 should be OFF).

5. Have there been any electrical storms that may have popped the line fuses?

6. Go on-line and monitor call progress on the Remote Module speaker.

7. If there still is no dial tone, do the following:

   a. Check the cables on the Remote Module; replace if necessary.

   b. Use a regular telephone to get dial tone on the jack. If there is no dial tone, check the installation wiring or call the telephone company. If there is dial tone present, the cable to the Module or a popped line fuse is probably the problem.

8. If there is a ring but no answer, do the following:

    a. Check the telephone number.

    b. Check the power for the Switch Module.

    c. Check the lines at the Switch Module.

Modules Retrain Too Often

When the Switch or Remote Modules retrain too often, the quality of the line is questionable. To correct this problem, answer or do the following:

1. Has the telephone company done any changes in the office or home?

2. Verify that the cables are okay and that all connections are correct.

3. Have the telephone company condition the lines as necessary.

4. Compare each module with a known good telephone if possible. The module may be defective.

Connect Rate Too Low

To correct this problem, do the following:

1. Check that the telephone lines are within specifications. Telephone line quality may be an issue. Check with the local telephone company for available options.

2. Check the baud rate setting in the programming menu. It can be set for "Auto," "F" (19.2 K), "M" (16.8 K), or "S" (14.4 K).

Dedicated Line Problems

Dedicated lines experience many of the same problems as normal dial lines. The difference in operation is the connect sequence. There is no call progress such as dial tone or ringing. When you select "Go Online," the Remote Module sends out a calling tone that initiates the train sequence from the Switch Module.

No Connection/No Answer Tone

To correct this problem, do the following:

1. Does the display on the telephone say "Go Online"? Then press **2** to start the session.

2. Check the power connection on the Switch Module.

3. Check the LED on the Switch Module and compare it to the LED diagnostic sheet. The Switch Module may be defective.

4. Check that the DIP switches on the Switch and Remote Modules are set for a dedicated line (DIP switch #2 should be ON).

5. Go on-line and monitor the call progress on the Remote Module speaker.

6. If there is no train sequence, do the following:

   a. Check the cables on the Remote Module, and replace or rewire them as needed.

   b. Check the cables on the Switch Module, and replace or rewire them as needed.

   c. Has the cable between the locations been cut?

   d. Is the T1 link between the units still up?

   e. Check if the circuit is configured to look for loop current (as in an FSO/FXS application). The telephone company must reconfigure the circuit.

System Drops Calls

The problem of the system dropping calls can occur on dial lines and dedicated lines. Follow these steps to correct the problem:

1. Lower the connect rate. From the Connect Rate menu, change the setting from "Auto" to "m" or "s." The lower rate will improve reliability

   NOTE:
   Speech quality degrades at 14.4 K.

2. Turn off the Call Waiting feature. The Call Waiting tone interrupts data.

3. Disconnect additional telephones. The presence of other telephones, answering machines, etc. on the line may cause noise or extra non-linearity.

4. Check the wiring. If the module goes into retrain when a call is received on a central office line, the wiring may need to be modified to eliminate crosstalk. This can be a problem in-house or at the telephone company.

5. Reposition wiring to eliminate possible interference. If the wiring is too close to or on top of an air conditioner, a photocopier, or a power transformer, interference may be generated on the line.

6. Check if voice compression equipment is used on the facility. The Extender system does not work with voice compression equipment.

7. Condition the line. Set the echo return loss (ERL) for minimum echo. You may have to install a precision balanced network to do this.

Glossary

+12 vdc
   12 volt direct current.

120 vac
   120 volt alternating current (North American standard electrical supply).

B

Baud Rate
   The speed in kbps at which digital data can be transmitted.

D

Direct Line
   A dedicated circuit or private leased line.

Dedicated Subscriber Lines
   Communication lines (usually twisted pair) that are used to connect on-premise telephone equipment (such as a PBX) to the Central Office. Also referred to as direct lines.

Dial Line
A telephone line which is part of the Public Switched Telephone Network and is accessed through the DEFINITY Extender's automatic dial-up function.

F

Facility
Transmission facilities. Usually a two metallic pair set of cords, but can be telephone company carriers, T-1, microwave or dial-up telecommunications lines.

L

LED
Light-emitting diode. A semiconductor diode which emits light when a current is passed through it, indicating that the power is on.

M

Multi-Mount Rack
A card frame with spaces for 12 Rack-Mount Modules. Each Rack-Mount Module functions like a Standalone Switch Module.

O

On-premise Lines
Communication lines (usually twisted-pair) that are used to connect the PBX to the DEFINITY telephone.

P

PBX
Private Branch Exchange.

R

Rack-Mount Switch Module
An interface card that fits into one of the 12 slots in the Multi-Mount Extender Rack. The Rack-Mount Switch Module has all the functionality of the Standalone Switch Module.

Remote Module
The DEFINITY Extender module that connects to the remote DEFINITY telephone.

S

Standalone Switch Module
A single enclosed Switch Module; contrast with a Multi-Mount Rack

Switch Module
The DEFINITY Extender module that connects to the DEFINITY PBX.